JOINT MEETING OF THE
AMBOS NOGALES AIR QUALITY TASK FORCE AND THE
BORDER LIAISON MECHANISM
ECONOMIC AND SOCIAL DEVELOPMENT SUBGROUP

U.S. Consulate
Calle San José S/N
Fraccionamiento Los Alamos

SUMMARY NOTES

Nogales, Sonora
March 23, 2006
1:00 – 4:00 p.m.

Welcome and Introductions:
Vice Consul Jim Becker initiated the meeting by welcoming the group. Mr. Angel López Guzmán then informed everyone that the environmental functions of the Sonora Secretariat of Urban Infrastructure and Ecology were now officially under the newly formed Commission of Ecology and Sustainable Development of Sonora (CEDES). Mr. López Guzmán and his staff remain our partners in this task force; only the name of the organization has changed.

Consul Sharpe joined the meeting for a brief period as she had other events to attend during the afternoon. After also welcoming participants, Consul Sharpe noted the accomplishments of the task force/subgroup and indicated that it was one of the most active under the Border Liaison Mechanism. She thanked the group for working toward goals to improve the air quality in the community and offered her continued support in those efforts.

Mr. Plácido dos Santos, the co-chair of the Ambos Nogales Air Quality Task Force, along with Mr. López Guzmán, introduced Ms. Edna Mendoza as the new ADEQ Border Air Outreach Coordinator and task force support lead. She recently assumed the role that became vacant when Ms. Michele Kimpel Guzmán left the agency to begin a new career with the U.S. State Department. Ms. Mendoza has been with ADEQ for 12 years and previously focused on hazardous waste management coordination and collaborating with maquiladoras on pollution prevention practices.

Before continuing on with the agenda, self introductions were made by meeting participants.

Presentation of "Plan of Action for Improving Air Quality in Ambos Nogales":
A copy of the Plan of Action for Improving Air Quality in Ambos Nogales was distributed to each meeting attendee. This document, as well as a supporting appendices document, was available in English and Spanish.

Mr. dos Santos provided a brief summary on the plan. Produced by ADEQ in June of 2005, this document provides background on a multi-year air monitoring study that led to the development of a plan of action to address ambient air quality issues in the communities of Nogales, Arizona and Nogales, Sonora through a binational intergovernmental dialogue.

Particulate matter has been determined to be the primary contaminant impairing air quality in Ambos Nogales. The plan identifies 12 key target areas that are categorized into "high priority actions" and "additional priority actions", which are listed below.

High Priority Actions:

A. Ensure adequate stabilization of more unpaved roads and parking lots.
B. Speed up individual and commercial border crossings.
C. Address vehicle emissions.
D. Construct major transportation corridors.
E. Reduce air quality impacts of the train route.

Additional Priority Actions:

F. Eliminate garbage burning.
G. Promote more effective revegetation efforts.
H. Reduce wood burning.
I. Implement engineering solution to soil erosion.
J. Establish recycling programs.
K. Create or improve public transit services.
L. Improve traffic flow on local streets.

It was noted that the document in both English and Spanish versions was available electronically through the ADEQ Web site at www.azdeq.gov and would be posted on the Border 2012 Web site as well at www.epa.gov/usmexicoborder.

Summary of Air Monitoring Results for 2005 in Ambos Nogales:
Mr. Gerardo Monroy gave a presentation summarizing particulate monitoring results for Ambos Nogales. The monitor station in Nogales, Arizona is at the post office on Morley Avenue. It is equipped with beta attenuation monitors (BAMS) and partisol samplers. The monitor site in Nogales, Sonora is at the fire station on Avenida Obregón and is equipped with dichotomous (dichot) samplers.

Particulate matter (PM) is measured at both sites. Data is collected for PM_{10} (particle size of up to 10 micrometers) and $PM_{2.5}$ (particle size of up to 2.5 micrometers). Meteorological parameters are also collected at the Nogales, Arizona site. These include wind speed, wind direction, temperature and pressure.

Samples from the partisol and dichot monitors are collected every sixth day. BAMS samples are collected every hour seven days a week. The BAMS monitors are considered special purpose monitors and are used for evaluation purposes. That is, they are not used to determine compliance with U.S. National Ambient Air Quality Standards (NAAQS). The U.S. standard for PM_{10} is 50 $\mu g/m^3$ and for $PM_{2.5}$ is 15 $\mu g/m^3$.

Annual averages for PM_{10} and $PM_{2.5}$ indicate that the highest annual averages were in 1999 and 2000 for Nogales, Arizona and Nogales, Sonora respectively, and the lowest averages were between the years of 2003 and 2004. Last year's average indicate a troubling trend. The PM_{10} average rose to the near 60 $\mu g/m^3$ range for both Nogales, Arizona and Nogales, Sonora. The $PM_{2.5}$ average was just below 15 $\mu g/m^3$ for Nogales, Arizona and 18 $\mu g/m^3$ for Nogales, Sonora.

The PM_{10} maximum 24-hr. concentration readings also follow this trend in 2005 and exceed the standard of 150 $\mu g/m^3$, with Nogales, Arizona at 276 $\mu g/m^3$ and Nogales, Sonora at 240 $\mu g/m^3$. At the Nogales, Arizona site, the partisol and BAMS readings for October 1st through December 30th correlated with the highest readings obtained on November 5th, December 3rd, and December 24th. There were 56 exceedances at this site in 120 days. Both communities

were below the standard in 2004. When comparing these readings to those in other communities, the Nogales, Arizona BAMS samples obtained for October 2005 through March 2006 far exceed readings obtained for the same period from monitors in Douglas, Yuma and Phoenix. There is a correlation between days with light winds and PM_{10} standard exceedances. A cold front usually preceeded days of air stagnation in the valleys, leading to an inversion layer. However, maximum and minimum temperatures on days with exceedances ranged from 62°F to 85°F and 49°F and 21°F, respectively.

Also noted during this presentation was the appearance of smoldering lateral sections and unplanned cases of burning trash at the old municipal landfill.

Conclusions drawn from this analysis are:

- Unpaved road dust remains one of the largest sources of air pollution in Ambos Nogales, along with vehicle emissions.
- Extreme drought conditions and unusual air stagnation have contributed to the high concentrations of particulate matter in Ambos Nogales in the last several months.
- The old municipal dump in Nogales, Sonora is an emerging problem that may turn into a more serious problem, if left unattended.

Update on Current and Ongoing Projects:

School Bus Retrofits in Rio Rico and Outreach

A presentation on the project was given by Mr. José Rodríguez. The main goals of the project are: (1) reduce the exposure of children to diesel emissions; (2) reduce diesel emissions; (3) demonstrate retrofits of school buses in the border region; (4) promote the use of cleaner fuels; (5) inform the public of the positive effects of using cleaner fuels and retrofitting technologies and; (6) conduct outreach to other fleet operators in the Arizona-Sonora border region.

The Rio Rico School District (RRSD) has 47 buses in its fleet equipped with diesel engines from various manufacturers and ranging in age. RRSD will retrofit 74% of its fleet – 31 will be retrofitted with a diesel oxidation catalyst (DOC) and 4 will be retrofitted with particulate traps (PT). Due to availability problems, the retrofitted buses will use a blend of 20% biodiesel and 80% regular diesel, rather than ultra-low-sulfur diesel as originally planned.

There are many benefits to these retrofitting technologies. For DOC they include: (1) a particulate matter reduction of 20% to 30%; (2) carbon monoxide and hydrocarbon reductions of up to 50%; (3) no specialized fuel is required and; (4) recommended for mechanical engines. For PT they are: (1) a greater than 90% reduction in particulate matter; (2) a 5% to 10% reduction in nitrogen oxides and; (3) works with all electronic engines built after 1994.

The associated costs are: $31,680 for the particulate traps; $54,340 for the diesel oxidation catalysts and; $13,980 for fuel and related costs. The total project cost is $100,000.

Thermal Construction and Alternative Heating Technologies

This project addresses the task force's recommendation to reduce wood burning, which is thought to be a significant contributor of poor air quality conditions particularly in the winter months. The principal goal is to identify and explore thermally designed housing construction techniques and alternative heating/cooking technologies appropriate to Ambos Nogales, with a specific focus on approaches with a likelihood of reducing emissions from wood burning currently used for heating and cooking purposes.

Dr. Diane Austin of the University of Arizona's Bureau of Applied Research in Anthropology (BARA) provided a progress summary for this project. During their initial scoping meetings, it was learned that many people who burn wood for cooking do so during the winter because their cooking devices also serve to heat their homes. It was determined that it was critical to get at least some devices out into the community during the winter to learn if they would be acceptable alternatives to those currently in use. Two basic approaches to reducing wood burning in stoves were identified: (1) replace the stoves with devices that do not require wood; or (2) replace them with energy efficient, low-emissions alternative wood-burning devices.

BARA recruited students from the Centro de Estudios Tecnológicos Industrial y de Servicios No. 128 (CETis 128) to design and construct stoves of three alternative types. With the help of an ecology teacher at CETis, a program was developed that included workshops on air quality and stove design, a design contest, selection of feasible designs, construction, and a final contest and exposition. Over 200 teachers and students attended the expo at the school, and a story about the event appeared on Channel 4 television in Nogales, Sonora. The winning stoves were also displayed during a stove demonstration held at a community center in Colonia Bella Vista.

Additionally, BARA coordinated efforts with a non-governmental organization, Solar Household Energy, to acquire and test solar hotpots. During the initial testing phase, 21 hotpots were distributed and another 20 will be distributed before the end of the project.

Data collection is still in progress regarding alternative construction technologies. Preliminary conclusions include: (1) roofs and insulation need more attention; (2) common alternatives such as straw bale are not appropriate for Nogales because of lack of basic materials and thus high transportation costs; and (3) the redesign of housing must incorporate more than alternative construction materials; much can be accomplished through attention to site design and orientation of the structure.

Ambos Nogales Revegetation Association Efforts

Dr. Diane Austin provided a brief overview was provided on the efforts of the Ambos Nogales Revegetation Association, known as ARAN. The project goal was to establish a sustainable program for identifying and protecting existing vegetation, as well as promoting effective revegetation efforts to stabilize soils, reduce air pollution, and reestablish communities of native vegetation within Ambos Nogales. Numerous groups and individuals came together to form ARAN and continue to collaborate to work towards this goal.

This project, funded through an EPA grant, has been completed. A draft final report has been developed, but has not been reviewed by the ARAN committee. It is expected to be completed and available for the next task force meeting in both English and Spanish versions.

Local Infrastructure Projects

Ing. Julian Martínez gave a presentation on the various infrastructure projects that the municipality of Nogales, Sonora has undertaken in the past several months. Vehicle overpasses have been constructed to alleviate traffic congestion due to wait times during routine train stops in the middle of the city.

These overpasses were planned for key locations, with four total planned for construction. The first one completed is the El Greco Overpass. This area has a heavy concentration of vehicle traffic, an average of 3,000 vehicles per hour. The construction of the overpass alleviated the bottleneck that routinely developed in the area. The Buenos Aires Overpass is currently under

construction. It is located in a heavily populated neighborhood and is 300 meters from the international border. Two more vehicle overpasses are contemplated, the Ana Gabriela Guevara Overpass and the Seguro Social Overpass. Additionally, a total of 12 pedestrian overpasses are planned.

Regarding the road paving project certified by the Border Environment Cooperation Commission (BECC), it is still being studied by the state of Sonora congress. It stipulates a cost allocation of 50% by the state and 50% by the user, or in this case, those residing on the street that will be paved. Mr. López Guzmán committed to organizing a meeting among the various levels and offices of state and municipal government to identify issues and options for addressing them. Progress on this is to be reported on during the next task force meeting.

2007 Ambos Nogales Clean Air Calendar Contest

The drawing and opinion contest for the 2007 Ambos Nogales clean air calendar is already underway. The deadline for submitting drawings and opinions from students is April 21, 2006. Participation has waned over the past couple of years. In an effort to increase participation for this year's contest, Mr. José Rodríguez met with teachers to give them an overview of local air quality issues and project outreach goals.

Contest instructions have been delivered to 125 schools on both sides of the border. Mr. Daniel Martínez of CEDES was identified to support ADEQ in promoting the calendar contest in Sonora, if necessary.

Other

No other projects were reported on.

Border 2012 Project Proposals:

Mr. dos Santos informed the group that informal notification had been received from EPA that a proposal for a biodiesel demonstration project submitted by the Instituto Tecnológico de Nogales and other partners was selected to receive Border 2012 funding. An official announcement from EPA is expected within the next several weeks.

Upcoming Events and General Discussion:

April 5	Alternative Cooking Design Contest at CETIS
May 7-10	Clean Cities Congress in Phoenix, Arizona
May 13	Health Fair in Patagonia, Arizona sponsored by SEAHEC
June 5	World Environment Day Event in Nogales, Sonora

Action Items and Closure:

The group's next meeting was tentatively scheduled for June 21st beginning at 10:00 a.m. in Nogales, Sonora at the U.S. Consulate.